AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) An ultrasonic processor for the separation of a liquid mixture, the processor comprising an enclosed processor chamber having opposite end walls and input and output mixture carrying ports communicating with the process chamber for the throughput of the mixture to be processed and a bank of ultrasonic converter units coupled to a wall of the processor chamber for transmitting ultrasonic waves to the mixture in the processor chamber ~~for transmitting ultrasonic waves to the mixture in the processor chamber for transmitting ultrasonic waves to the mixture in the processor chamber~~ characterised in that the input port is displaced from the output port along a connecting wall of the chamber in a direction substantially perpendicular to the chamber wall to which the bank of ultrasonic converters is coupled, and the converter units in operation create an ultrasound stable standing wave pattern of multiple wavelengths between the input and the output ports of the ultrasonic processor and along the length of the processor chamber.

2. (Cancelled)

3. (Currently amended) An ultrasonic processor according to claim ~~2~~ 1 and in which the displacement of the input port from the output port along the length of the processor chamber is greater than the wavelength of ultrasound created by the ultrasonic transducers in the processor chamber.

4. (Previously presented) An ultrasonic processor according to claim 1 in which the chamber comprises a sealed metal container having substantially parallel enclosing walls, the ultrasonic converter units being coupled to the wall.

5. (Currently amended) An ultrasonic processor ~~in accordance with~~ according to claim 3 and in which the parallel walls are separated by a distance which is an integral or half integral multiple of wavelength of the ultrasound standing wave.

6. (Previously presented) An ultrasonic processor according to claim 1 in which the input port is at the bottom of the process chamber and the output port is at the top of the chamber.

7. (Previously presented) An ultrasonic processor according to claim 1 wherein the wall upon which the ultrasonic converter bank is mounted is at least substantially flat.

8. (Original) An ultrasonic processor according to claim 5 in which the processor chamber is of tubular construction.

9. (Original) An ultrasonic processor according to claim 5 in which the processor chamber is non-cylindrical.

10. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 1~~,~~ wherein the length of the individual converter units is at least substantially half a wavelength of ultrasound at the driven frequency of the converter units.

11. (Currently amended) An ultrasonic processor ~~claimed in~~ according to claim 1 wherein the converter units are driven in phase with each other.

12. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 1~~,~~ wherein the individual converters units of the bank of converters are comprised of: a back plate, a transducer module and a wave-guide; the parts so assembled being compressed at predetermined torque by a compression bolt passed through the back plate and transducer module and screwed into one end of the wave-guide, the other end being metallically or chemically bonded to the processor chamber wall.

13. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 12 in which the back plate is stainless steel, titanium or aluminium.

14. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 1 in which ~~the~~ a wave-guide has the same cross sectional area along its length as the transducer module to which it is connected.

15. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 12 in which the wave-guide increases in width along its length to have substantially greater cross section at the wall than the transducer module to which it is connected and thus transform power density at the face of the module to a lower density over a greater area.

16. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 12 is conical, pyramidical or other configuration invert of welding-transducer horn design.

17. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 1 wherein the chamber wall is mounted to the chamber enclosure by an acoustic isolation means.

18. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 1 wherein the length of the individual converter unit of the bank of converter units mounted to the chamber wall, is substantially a quarter of a wavelength of ultrasound therein at a driven frequency of the ultrasonic transducer.

19. (Currently amended) An ultrasonic processor ~~as claimed in~~ according to claim 1 in which a bank of wave-guides of pyramidical form truncated to accept ultrasonic energy from the transducer modules, is bonded to the chamber wall with edges of respective wave-guides within 5 cm or less of each other on the chamber wall.

20. (Currently amended) An ultrasonic drill cuttings treatment system comprising at least one ultrasonic processor ~~as claimed in~~ according to claim 1.

21. (Cancelled)

22. (Cancelled)